2. Introduction

A business case is typically developed to identify the most desirable investment solution to a business need. Projected benefits and costs are determined for each viable solution. Analyses of the benefits and costs are conducted to predict each solution's investment payback point and return on investment data. The results of the analyses are used to compare the proposed solution(s) with the status quo. The results of a business case will validate whether or not it is cost effective to proceed with the investment.

The technology-supported learning business case development process included the: collection and analysis of baseline data, performance of a needs assessment, review of industry best practices, development of alternative solutions to satisfy the gap between the baseline data and the results of the needs assessment, and an analysis of the benefits and costs of each alternative to determine the most cost-effective solution.

The technology-supported learning business case may lead to establishment of a corporate technology-supported learning program. While the facts and figures of this business case support the concept of a corporate program, next steps (i.e., development of a comprehensive program plan and implementation plan) are dependent upon: (1) approval of the business case recommendations by both the Training and Development Management Council and the Executive Committee for Information Management, and (2) appropriate Congressional/DOE corporate funding.

2.1 Purpose

This *DOE Technology-Supported Learning Business Case* was developed to examine and determine whether or not it would be economically feasible and cost effective to establish and invest in a corporate technology-supported learning program. Such a program would provide for the delivery and receipt of cross-cutting education and training courses via the use of advanced training technologies (i.e., interactive television, computer-based training, multimedia, high-speed networks, and other technologies, as they evolve).

The business case satisfies critical milestone 4 in the action plan (appendix A) entitled “DOE Approach to Distance Learning,” which was issued March 27, 1996. The action plan and critical milestones were developed in response to budget cuts and the Secretary of Energy's Strategic Alignment Implementation (SAI) Plans. The SAI plans called for development of a corporate approach to training, integration of information management, and reduced travel. The action plan officially partnered the Training and Information Management communities of interest, and marked the beginning of a collaborative effort with DOE-wide elements to support the SAI plans. It is through such partnering and collaboration that a unified Departmental direction will be ensured for the effective application of advanced training technologies in education and training.

The business case also begins to address and satisfy the Congressional mandates of the Information Technology Management Reform Act of 1996, which requires performance-based and results-based management.

2.2 Project Scope

The initial scope of the business case included all education and training activity. A baseline ("as-is") was developed to describe the current state of education and training for the DOE-wide complex. The entire breadth of courseware development, delivery, and receipt of education and training courses was examined for both Federal and contractor employees. Following establishment of the baseline, the scope of the business case project was narrowed to focus on the creation, delivery, and receipt of cross-cutting education and training courses, particularly suited to delivery via advanced training technologies. This change in scope was agreed by the business case workshop participants to ensure project manageability and responsive development of the business case.

2.3 Participation

All DOE Headquarters and field elements were invited to participate in the development of the *DOE Technology-Supported Learning Business Case*. A cross-functional group of subject matter experts, both Federal and contractor representatives, was established from the Training and Information Management communities. These representatives attended workshops, gathered data from their sites, and provided input as needed to satisfy the objectives of the business case. The Departmental elements that did not send participants to the workshops were invited to submit verbal or written input to the business case, and input received was incorporated.

A core planning team of subject matter experts was formed out of the larger cross-functional group to design the business case project approach, manage the project processes, design and facilitate the workshops, document and analyze workshop results, and produce the business case product. In addition to designing, developing and facilitating formal workshops, the core planning team members participated in face-to-face meetings, weekly telephone conferences, and video teleconferences as needed to report project status and to accomplish tasks.

A total of 38 DOE organizational elements provided input to the business case. Of that number, 16 elements sent representatives to at least one of the three workshops. Additional information about participants is provided in chapter 3. A list of the organizational elements represented at the workshops, and the names and addresses of the workshop participants are provided in appendix B.

2.4 Methodology--Strategic Information Management

The approach used to develop the business case followed a modified version of the Strategic Information Management (SIM) framework and process, established by the General Accounting

Office (GAO), and published in the GAO document, *Executive Guide - Improving Mission Performance Through Strategic Information Management and Technology* (May 1994).

SIM has been used for at least nine Federal Government strategic information management initiatives, including projects conducted by the United States Coast Guard, Department of Commerce, and the Social Security Administration. Leading private sector organizations employing the SIM process include Kodak, Xerox, and American Airlines. California, Florida, and Texas are among the state governments implementing SIM processes.

The use of strategic information management practices is cited in several Congressional mandates including the National Performance Review (NPR), the Chief Financial Officer (CFO) Act, the Government Performance and Results Act (GPRA), and the Information Technology Management Reform Act (ITMRA).

The Department of Energy has successfully completed a SIM project for the Office of the Assistant Secretary for Human Resources and Administration. Based on the results of the project, a Corporate Human Resources Information System (CHRIS) is being developed for DOE-wide implementation.

The SIM framework provides a methodology for developing an infrastructure and set of management processes that ensure the strategic alignment of existing and proposed business solutions with the Department's mission and goals. The process typically involves defining a mission based on customer requirements and needs; establishing core processes that accomplish the mission; understanding the key decisions that guide mission delivery processes; supporting those decisions with the right information available to the right people at the right time; and using technology to collect, process, and disseminate information in ways that improve the delivery of products, goods, and services to customers.

The SIM process used to collect the information for the technology-supported learning business case was dynamic in nature. Three groupware-supported, facilitated workshops were held to collect information for the development of the business case. The design and flow of the workshops were evaluated and, at times, were altered based on participant feedback anonymously received via daily evaluations. The workshop results were also evaluated to ensure there were no major gaps in the information collected. Questionnaires and telephone interviews were used to collect information from the DOE elements that were not able to send a representative to the workshops.

In addition to the three workshops, analyses were conducted to determine industry's current best practices in technology-supported learning and to develop an inventory of the information systems being used to support DOE education and training processes. Other organizations that had implemented technology-supported learning were contacted to determine advantages, disadvantages, and lessons learned. These data provided the basis for developing a future scenario for technology-supported learning for the DOE. The inventory of information systems provides an understanding of the information that is needed and is a starting point for future

consolidation of redundant systems. The inventory also provides opportunities for expanding existing data bases and improving user access to information.

2.5 Business Case Development Tasks

The following is a synopsis of the tasks required for the development of the *DOE Technology-Supported Learning Business Case*.

Project Planning. This task consisted of developing the project scope and schedules, identifying complex-wide representatives, assigning responsibilities, and scheduling facilities and groupware.

Kickoff Meeting and "As-Is" (Baseline) Analysis Workshop. The focus of the Kickoff Meeting was to achieve a common understanding of the SIM process and how the process related to development of a business case.

The "As-Is" Workshop was used to collect data, determine the baseline of current education and training activities, identify the existing information systems and technology infrastructure available to support cross-cutting education and training, and document the baseline business processes so that performance may be measured in the future. The baseline includes a description of the baseline data collection effort, a summary of the data collected, and the education and training delivery methods currently used within the Department. The baseline data (chapter 3) will be used to develop and measure future performance levels (e.g., cost savings, successes, benefits, service levels, and limitations).

Best Practices and Benchmarking Analysis. Technology-supported learning best practices were identified in other federal government agencies and the private and public sectors (section 4.3). Information was obtained and analyzed for organizations with similar programs, and/or education and training needs. In particular, this research focused on lessons learned and solutions that were implemented. Data gathered through this task and research information previously gathered were used in formulating the business case alternatives and recommendations. Full-scale benchmarking is planned as a future project (section 4.2).

Information Systems Inventory and Assessment. Through this task, the information systems currently used by DOE elements to support education and training processes were identified, points of contact for the systems were established, the types of information that the systems provide were identified, and the systems were categorized by whether they are Departmentwide or local systems. A matrix of the information systems inventory was developed and will be used to reduce redundancies and identify information systems needed to satisfy customer service requirements (appendix D).

To-Be Analysis Workshop and Needs Assessment. Participants were asked to describe what the future use of technology-supported learning within DOE might look like, as a means of developing a "to-be" scenario. A needs assessment was performed, using course descriptions extracted from existing course catalogs. Given a representative sample of cross-cutting courses, the Distance Learning Appropriateness Screening Tool (appendix E) was used to determine which

advanced training technology would be most appropriate for delivery of various cross-cutting education and training courses. Through this effort the anticipated direction of Departmentwide cross-cutting education and training was developed for fiscal years 1998-2002 (chapter 4).

Gap Analysis Workshop. An analysis of baseline and needs assessment data was conducted to determine the technological and organizational changes that the Department must implement in order to satisfy current and future education and training needs and to achieve all or part of the "to-be" envisioned scenario. Analysis determined the gap between the technology-supported learning requirements and the technology-supported learning currently available for education and training. As a result of the analysis, five alternative solutions were developed for satisfying the cross-cutting education and training needs (chapter 5). The alternatives were used to compare the benefits and costs of various combinations of traditional and technology-supported learning delivery methods.

Analysis of Benefits and Costs. An analysis of benefits and costs was the systematic method used to compare alternative solutions. The results of the analysis of benefits and costs were used to predict the payback point and return on investment data for each alternative, and to determine the recommended solution for the corporate approach to technology-supported learning (chapter 6).

Business Case/Executive Presentation Preparation. The results of all tasks were synthesized into the *DOE Technology-Supported Learning Business Case.* An executive-level presentation using the Boylan Method was developed. The presentation will be used to brief the results and recommendations of the business case to both the Training and Information Management communities of interest, up to and including the Training Development and Management Council (TDMC) and the Executive Committee for Information Management (ECIM).

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